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THE PLANT DISEASE REPORTER

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Division of Mycology and Disease Survey

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BUREAU OF PLANT INDUSTRY

UNITED STATES DEPARTMENT OF AGRICULTURE

THE PLANT DISEASE REPORTER

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THE PLANT DISEASE SURVEY

DIVISION OF MYCOLOGY AND DISEASE SURVEY

Vol. XXI Number 9

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IN THIS ISSUE

Louise Crossman and J. R. Christie have compiled another of the useful host lists of plant-infesting nematodes, page 144.

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D. H. Palmiter, W. D. Mills, and W. J. Clark report on apple diseases in various parts of New York, page 172.

Fruit diseases in Rhode Island, page 173, are reported by Frank L. Howard.

Apple and peach diseases observed in the important fruit region around Winchester, Virginia, are reported by A. B. Groves, page 174.

Tobacco downy mildew has been found again this year in Kentucky, according to W. D. Valleau, page 174. He reports it from Tennessee also.

Brief notes on plant diseases, page 174, include reports on peach leaf curl by Paul R. Miller; stem rot of clover and alfalfa and powdery mildew of cereals in Virginia, by S. A. Wingard; and Botrytis causing loss of lettuce seedlings in New York, by M. B. Linn.

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Rains give growing season better start than in 1936, page 178.

LISTS OF PLANTS ATTACKED BY MISCELLANEOUS PLANT-INFESTING NEMATODES

Compiled by

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United States Department of Agriculture

Introductory Note

Lists of plants attacked by the more important plant-infesting nematodes have already appeared in The Plant Disease Reporter, as follows: The bulb and stem nematode, Ditylenchus dipsaci, v. 15 (8), June 1, 1932, pp. 76-85; the root-knot nematode, Heterodera marioni, v. 17 (7), June 15, 1933, pp. 64-96; the sugar beet nematode, Heterodera schachtii, v. 20 (3), Feb. 15, 1936, pp. 38-47; the bud and leaf nematode, Aphelenchoides fragariae, v. 20 (10), June 1, 1936, pp. 155-165. To complete this series, the writers have compiled the following lists of host plants attacked by the remaining species of plant-infesting nematodes.

Names of nematodes as given herein are in accordance with the classification proposed by Filipjev (1936, Proc. Helminth. Soc. Wash. v. 3 (2): 80-82). Where species were not placed by Filipjev, or where species were doubtfully placed and new combinations were not made, the original generic name is retained even though the species according to recent taxonomic view may not properly belong to that genus.

Each host plant is listed alphabetically under its accepted scientific name (numbered and in capital letters), under its synonym, if such is found in nematological or plant pathological literature (in small letters and parentheses), and under its common name, if such is in general use (in small letters without parentheses).

Hosts known to be affected in continental United States of America are marked *; those observed by members of the Division of Nematology are marked +. The marks occur before the accepted scientific name only.

The names of the flowering plants were checked by S. F. Blake and those of the grasses by Agnes Chase both of the Division of Plant Exploration and Introduction. The names of the mosses were checked by E. C. Leonard of the U. S. National Museum. These specialists have kindly aided by supplying the latest recognized generic, specific, and common botanical names.

ANGUILLULINA ASKENASYI (BÜTSCHLI, 1873) STEINER, 1936
(Probably belongs to the genus Ditylenchus)

1. HYPNUM CUPRESSIFORME
+ * 2. THUIDIUM DELICATULUM

ANGUILLULINA PUSTULICOLA THORNE, 1934
(Probably belongs to the genus Anguina)

\+ 1. Grass (Unidentified)
\+ 2. Hay (Unidentified)

ANGUINA AGROSTIS (STEINBUCH, 1799) FILIPJEV, 1936

1. AGROSTIS ALBA, Redtop
(Agrostis alba Hort. var. stolonifera) = AGROSTIS PALUSTRIS
2. AGROSTIS CANINA, Velvet bent
(Agrostis capillaris) = AGROSTIS TENUIS
3. AGROSTIS CASTELLANA Hort. var. CEDRORUM
4. AGROSTIS PALUSTRIS (A. alba Hort. var. stolonifera), Creeping bent
5. AGROSTIS POLYMORPHA
6. AGROSTIS SP., Bentgrass
7. AGROSTIS SPICA-VENTI, (Apera (Agrostis) spica-venti)
(Agrostis sylvatica) = AGROSTIS TENUIS
8. AGROSTIS STOLONIFERA, Carpet bent
9. AGROSTIS STOLONIFERA DIFFUSA
10. AGROSTIS TENUIS (Agrostis capillaris; A. sylvatica; A. vulgaris), Colonial bent
(Agrostis vulgaris) = AGROSTIS TENUIS
(Apera (Agrostis) spica-venti) = AGROSTIS SPICA-VENTI
Bent, carpet, AGROSTIS STOLONIFERA
Bent, colonial, AGROSTIS TENUIS
Bent, creeping, AGROSTIS PALUSTRIS
Bentgrass, AGROSTIS SP.
Bent, velvet, AGROSTIS CANINA
?Bluegrass, Alpine, POA ALPINA
Bluegrass, annual, POA ANNUA
Bluegrass, Kentucky, POA PRATENSIS
Bucaloe dactyloides, Buffalo grass (Note: Not Anguina agrostis according to oral communication of G. Steiner. Published by Gernert, 1937)
Fescue, FESTUCA SP.
Fescue, sheep, FESTUCA OVINA
11. FESTUCA OVINA, Sheep fescue
\+ 12. FESTUCA SP., Fescue

?Grass, June, KOELERIA CRISTATA
Grass, reed canary, PHALARIS ARUNDINACEA
Grass, squirreltail, HORDEUM JUBATUM

+ 13. HORDEUM JUBATUM, Squirreltail grass
14. ?KOELERIA CRISTATA, June grass
15. KOELERIA GLAUCA
16. PHALARIS ARUNDINACEA, Reed canary grass
(Phalaris phleoides) = PHLEUM PHLEOIDES
17. PHLEUM BOEHMERI
18. PHLEUM PHLEOIDES (Phalaris phleoides)
19. PHLEUM PRATENSE, Timothy
20. PHLEUM SP., Timothy
21. ?POA ALPINA, Alpine bluegrass
22. POA ANNUA, Annual bluegrass
23. POA PRATENSIS, Kentucky bluegrass
Redtop, AGROSTIS ALBA
Timothy, PHLEUM PRATENSE; PHLEUM SP.

ANGUINA CHCIDOPLASTES (GOODEY, 1934) FILIPJEV, 1936

1. ANDROPOGON PERTUSUS

ANGUINA GRAMINIS (Hardy, 1850) FILIPJEV, 1936

1. AGROSTIS SP., Bentgrass
Bentgrass, AGROSTIS SP.
2. DESCHAMPSIA CAESPITOSA, Tufted hairgrass
3. DESCHAMPSIA FLEXUOSA, Crinkled hairgrass
Fescue, hair, FESTUCA CAPILLATA
Fescue, hard, FESTUCA OVINA DURIUSCULA
Fescue, red, FESTUCA RUBRA
Fescue, sheep, FESTUCA OVINA
4. FESTUCA CAPILLATA, Hair fescue
5. FESTUCA DUMETORUM
6. FESTUCA OVINA, Sheep fescue
7. FESTUCA OVINA DURIUSCULA, Hard fescue
8. FESTUCA RUBRA, Red fescue
9. FESTUCA RUBRA FALLAX subvar. NIGRESCENS
Hairgrass, crinkled, DESCHAMPSIA FLEXUOSA
Hairgrass, tufted, DESCHAMPSIA CAESPITOSA

ANGUINA MILLEFOLII (LÖW, 1874) FILIPJEV, 1936

1. ACHILLEA CLAVENNAE
2. ACHILLEA MAGNA
3. ACHILLEA MILLEFOLIUM, Common yarrow
4. ACHILLEA MOSCHATA
5. ACHILLEA NOBILIS
6. ACHILLEA TANACETIFOLIA

Yarrow, common, ACHILLEA MILLEFOLIUM

ANGUINA SPERMOPHAGA STEINER, 1937

\+ 1. SACCHARUM SPONTANEUM

THE WHEAT NEMATODE
ANGUINA TRITICI (STEINBUCH, 1799) FILIPJEV, 1936

* 1. AVENA SATIVA, Oat (Note: Leaf injury only; Expt. infested)
Barley, HORDEUM VULGARE
Bentgrass, March (Note: Listed as a host for Anguina tritici by Swanton, 1912. There is a question as to whether the nematodes found were correctly identified)
Emmer, TRITICUM DICOCCUM

2. ?HOLCUS LANATUS

* 3. HORDEUM VULGARE, Barley (Note: Very slightly susceptible)
Oat, AVENA SATIVA

4. ?PHLEUM PRATENSE, Timothy.
Rye, SECALE CEREALE

* 5. SECALE CEREALE, Rye
Spelt, TRITICUM SPELTA
?Timothy, PHLEUM PRATENSE

\+ * 6. TRITICUM AESTIVUM (Triticum vulgare; T. sativum), Wheat

* 7. TRITICUM DICOCCUM, Emmer
(Triticum sativum) = TRITICUM AESTIVUM

\+ 8. TRITICUM SP., Wheat

\+ * 9. TRITICUM SPELTA, Spelt
(Triticum vulgare) = TRITICUM AESTIVUM
Wheat, TRITICUM AESTIVUM; TRITICUM SP.

APHELENCHOIDES COCOPHILUS (COBB, 1919) GOODEY, 1933

\+ 1. COCOS NUCIFERA, Coconut
2. ELAEIS GUINEENSIS, African oil palm
3. PHOENIX DACTYLIFERA, Date palm

APHELENCHOIDES HELOPHILUS (DE MAN, 1880) GOODEY, 1933

\+ 1. BRASSICA RAPA, Turnip
\+ * 2. LILIUM SARGENTIAE, Sargent lily

APHELENCHOIDES HODSONI GOODEY, 1935

1. NARCISSUS SP. Hort. vars. SIR WATKIN and EMPEROR

APHELENCHOIDES HUNTI STEINER, 1935

\+ 1. LILIUM TIGRINUM, Tiger lily
\+ 2. PHYSALIS IXOCARPA, Tomatillo

APHELENCHOIDES SOLANI STEINER, 1935

\+ 1. SOLANUM TUBEROSUM, Potato

THE RICE NEMATODE
DITYLENCHUS ANGUSTUS (BUTLER, 1913) FILIPJEV, 1936

1. ORYZA SATIVA, Rice

DITYLENCHUS GRAMINOPHILA (GOODEY, 1933) FILIPJEV, 1936

1. AGROSTIS ALBA, Redtop
\+ * 2. AGROSTIS TENUIS (Agrostis vulgaris), Colonial bent (Agrostis vulgaris) = AGROSTIS TENUIS

DITYLENCHUS PHYLLOBIUS (THORNE, 1934) FILIPJEV, 1936

\+ * 1. SOLANUM ELAEAGNIFOLIUM

DITYLENCHUS RADICICOLA (GREEFF, 1872) FILIPJEV, 1936

1. AGROPYRON REPENS (Triticum repens), Quackgrass (Aira flexuosa) = DESCHAMPSIA FLEXUOSA
2. ALOPECURUS PRATENSIS, Meadow foxtail

(Arrhenatherum avenaceum) = ARRHENATHERUM ELATIUS

3. ARRHENATHERUM ELATIUS (Arrhenatherum avenaceum; Avena elatior), Tall oatgrass
(Avena elatior) = ARRHENATHERUM ELATIUS

4. AVENA SATIVA, Oat
Barley, HORDEUM VULGARE
Barley, two-rowed, HORDEUM DISTICHUM
Bluegrass, annual, POA ANNUA
Bluegrass, Kentucky, POA PRATENSIS

5. DESCHAMPSIA FLEXUOSA (Aira flexuosa), Crinkled hairgrass

6. DODARXIA ORIENTALIS
Dunegrass, European, ELYMUS ARENARIUS

7. ELYMUS ARENARIUS, European dunegrass

8. ELYMUS GLAUCUS, Blue wild-rye
Foxtail, meadow, ALOPECURUS PRATENSIS
Hairgrass, crinkled, DESCHAMPSIA FLEXUOSA

9. HORDEUM DISTICHUM, Two-rowed barley
(Hordeum sativum) = HORDEUM VULGARE

10. HORDEUM VULGARE (Hordeum sativum), Barley
Oat, AVENA SATIVA
Oatgrass, tall, ARRHENATHERUM ELATIUS

11. PHLEUM PRATENSE, Timothy

12. POA ANNUA, Annual bluegrass

13. POA PRATENSIS, Kentucky bluegrass
Polygonum sp. (Note: Listed as a host for radicicola by Marcinowski, 1909, who credits the report to Tarnani, 1898. The present writers did not find this plant mentioned in Tarnani's paper)
Quackgrass, AGROPYRON REPENS
Rye, SECALE CEREALE

14. SECALE CEREALE, Rye

15. SEDUM SPP., Stonecrop
Stonecrop, SEDUM SPP.
Timothy, PHLEUM PRATENSE

16. TRITICUM AESTIVUM (Triticum vulgare), Wheat
(Triticum repens) = AGROPYRON REPENS
(Triticum vulgare) = TRITICUM AESTIVUM
Wheat, TRITICUM AESTIVUM
Wild-rye, blue, ELYMUS GLAUCUS

DITYLENCHUS SYCOBIUS (COTTE, 1920) FILIPJEV, 1936

1. FICUS SP., Wild fig

HALENCHUS FUCICOLA (DE MAN, 1892) COBB, 1933

(Ascophyllum nodosum) = FUCUS NODOSUS
1. ?CHRONDUS CRISPUS
2. DESMARESTIA ACULEATA
+ * 3. FUCUS NODOSUS (Ascophyllum nodosum), Seaweed
4. FURCELLARIA FASTIGIATA
5. RHODYMENIA PALMATA
Seaweed, FUCUS NODOSUS

HETERODERA PUNCTATA THORNE, 1928

\+ 1. TRITICUM AESTIVUM, Wheat

HEXATYLUS VIVIPARUS GOODEY, 1926

1. GLADIOLUS SP., Gladiolus
2. SOLANUM TUBEROSUM, Potato

HOPLOLAIMUS CORONATUS COBB, 1923

Alfalfa, MEDICAGO SATIVA
Clover, red, TRIFOLIUM PRATENSE
Corn, Indian, ZEA MAYS
Lucerne, MEDICAGO SATIVA
Maize, ZEA MAYS
+ * 1. MEDICAGO SATIVA, Alfalfa; Lucerne
Pine, Austrian, PINUS NIGRA
(Pinus laricio) = PINUS NIGRA
+ * 2. PINUS NIGRA (Pinus laricio), Austrian pine
+ * 3. SACCHARUM OFFICINARUM, Sugarcane
Sugarcane, SACCHARUM OFFICINARUM
+ * 4. TRIFOLIUM PRATENSE, Red clover
+ * 5. ZEA MAYS, Maize; Indian corn

NEOTYLENCHUS ABULBOSUS STEINER, 1931

Beet, sugar, BETA VULGARIS
+ * 1. BETA VULGARIS, Sugar beet
Carrot, DAUCUS CAROTA
\+ 2. CASTANEA SP., Chestnut
Chestnut, CASTANEA SP.
\+ 3. DAUCUS CAROTA, Carrot

+ * 4. FRAGARIA SP. Hort. var. CAPITOLA, Strawberry
+ 5. PAPAVER ORIENTALE, Oriental poppy
Poppy, oriental, PAPAVER ORIENTALE
Potato, SOLANUM TUBEROSUM
+ 6. SOLANUM TUBEROSUM, Potato
Strawberry, FRAGARIA SP. Hort. var. CAPITOLA
+ 7. TRITONIA SP. Hort. var. PROMETHEUS

NEOTYLENCHUS LATUS THORNE, 1935

+ * 1. ATRIPLEX CONFERTIFOLIA, Shadscale

NEOTYLENCHUS OBESUS THORNE, 1934

+ * 1. MEDICAGO SATIVA, Alfalfa

PARAPHELENCHUS AMBLYURUS STEINER, 1934

+ 1. DIOSCOREA BATATAS, Cinnamon-vine

PARAPHELENCHUS MAUPASI MICOLETZKY, 1921

+ 1. COFFEA SP., Coffee
+ 2. HYACINTHUS SP., Hyacinth
+ * 3. NICOTIANA TABACUM, Common tobacco

PARAPHELENCHUS PSEUDOPARIETINUS (MICOLETZKY, 1921) MICOLETZKY, 1925

+ 1. ARACHIS HYPOGAEA, Peanut
+ 2. NARCISSUS SP. Hort. vars. PEARL QUEEN and SIR ERNEST SHACKLETON
+ 3. SOLANUM TUBEROSUM, Potato
+ * 4. XANTHIUM SP., Cocklebur

PRATYLENCHUS ABERRANS (THORNE, 1935) FILIPJEV, 1936

+ * 1. ATRIPLEX CONFERTIFOLIA, Shadscale

PRATYLENCHUS DENDROPHILUS (MARCINOWSKI, 1909) FILIPJEV, 1936

1. PRUNUS SP., ("in gum of diseased cherry tree")

PRATYLENCHUS MAHOGANI (COBB, 1920) FILIPJEV, 1936

\+ 1. SWIETENIA MAHOGANI, Mahogany

PRATYLENCHUS MUSICOLA (COBB, 1919) FILIPJEV, 1936

\+ 1. MUSA PARADISIACA SAPIENTUM, Common banana
2. MUSA SP., Banana
\+ * 3. VITIS VINIFERA, European grape

THE MEADOW NEMATODE
PRATYLENCHUS PRATENSIS (DE MAN, 1880) FILIPJEV, 1936

Alfalfa, MEDICAGO SATIVA
Amaranth, redroot, AMARANTHUS RETROFLEXUS
\+ * 1. AMARANTHUS RETROFLEXUS, Redroot amaranth
* 2. AMYGDALUS SP., Peach
\+ * 3. ANANAS SATIVUS, Pineapple
\+ * 4. ANCHUSA MYOSOTIDIFLORA, Siberian bugloss
\+ * 5. ANTIRRHINUM SP., Snapdragon
Apple, MALUS SP.
6. ATRIPLEX SP., Saltbush
7. AVENA FATUA, Wild oat
\+ * 8. AVENA SATIVA, Oat
Barley, HORDEUM VULGARE
Beet, common, BETA VULGARIS
9. BETA VULGARIS, Common beet
Blue-eyed-grass, common, SISYRINCHIUM ANGUSTIFOLIUM
10. BRASSICA ALBA (Sinapis alba), White mustard
Brassica campestris (Note: Given in the literature by many authors for rutabaga. According to Bailey's Gentes Herbarum, Dec. 1930, the common rutabaga is BRASSICA NAPOBRASSICA)
\+ * 11. BRASSICA NAPOBRASSICA, Rutabaga
\+ * Also Hort. var. FAVORITE
12. BRASSICA NAPUS, Rape
(Brassica oleracea acephala) = BRASSICA OLERACEA VIRIDIS
\+ * 13. BRASSICA OLERACEA BOTRYTIS, Cauliflower
14. BRASSICA OLERACEA CAPITATA, Cabbage
15. BRASSICA OLERACEA VIRIDIS (Brassica oleracea acephala), Kale
Brome, smooth, BROMUS (INERMIS?)
\+ * 16. BROMUS (INERMIS?), Smooth brome
Bugloss, Siberian, ANCHUSA MYOSOTIDIFLORA
Cabbage, BRASSICA OLERACEA CAPITATA
Camphor, CINNAMOMUM CAMPHORA

Carnation, DIANTHUS CARYOPHYLLUS
Carrot, DAUCUS CAROTA
+ * 17. CATTLEYA SP.
Cauliflower, BRASSICA OLERACEA BOTRYTIS
(Chaetochloa viridis) = SETARIA VIRIDIS
+ * 18. CHENOPODIUM ALBUM, Lambsquarters
+ 19. CHRYSANTHEMUM COCCINEUM Hort. var. EILEIN MAY ROBINSON
+ * 20. CHRYSANTHEMUM SP., Chrysanthemum
+ * 21. CINNAMOMUM CAMPHORA, Camphor
22. CITRUS SINENSIS, Orange
23. CLEMATIS JACKMANI, Jackman clematis
Clover, TRIFOLIUM SP.
Clover, red, TRIFOLIUM PRATENSE
(Cochlearia armoracia) = RADICULA ARMORACIA
(Colocasia sp.) = LEUCOCASIA SP.
+ 24. CONVALLARIA MAJALIS, Lily-of-the-valley
Corn, Indian, ZEA MAYS
25. CORYNEPHORUS CANESCENS (Weingartneria canescens)
Cotton, GOSSYPIUM SPP.
Cowpea, common, VIGNA SINENSIS
+ * 26. CYCLAMEN SP., Cyclamen
+ * 27. CYTISUS MONSPESSULANUS
Dandelion, LEONTODON TARAXACUM
+ 28. DAUCUS CAROTA, Carrot
+ * 29. DELPHINIUM SP., Larkspur
30. DIANTHUS CARYOPHYLLUS, Clove pink; Carnation
+ 31. DIOSCOREA SP., Yam
Dock, curly, RUMEX CRISPUS
+ * 32. DUCHESNEA INDICA, Mock-strawberry
Elm, Chinese, ULMUS PARVIFOLIA
33. EMILIA SONCHIFOLIA, Tasselflower
+ * 34. FICUS CARICA, Common fig
Fig, common, FICUS CARICA
35. FRAGARIA CHILOENSIS, Chiloe strawberry
+ * 36. FRAGARIA SP., Strawberry
(Glycine hispida) = SOJA MAX
Goldenrod, November, SOLIDAGO SEROTINA
Goldenrod, seaside, SOLIDAGO SEMPERVIRENS
Goldenrod, tall, SOLIDAGO ALTISSIMA
Goldenrod, wrinkled, SOLIDAGO RUGOSA
+ * 37. GOSSYPIUM SPP., Cotton
Grape, VITIS SP.
Grass, green foxtail, SETARIA VIRIDIS
Grasses. Various unspecified lawn grasses.
38. HEPATICA NOBILIS (Hepatica triloba), Roundlobe hepatica
39. HEPATICA SP., Hepatica
(Hepatica triloba) = HEPATICA NOBILIS

40. HIBISCUS ESCULENTUS, Okra
41. HORDEUM VULGARE, Barley
Horseradish, RADICULA ARMORACIA
+ * 42. IRIS SP., Iris
Kale, BRASSICA OLERACEA VIRIDIS
43. LACTUCA SATIVA, Lettuce
Lambsquarters, CHENOPODIUM ALBUM
Larkspur, DELPHINIUM SP.
+ * 44. LATHYRUS ODORATUS, Sweet pea
+ * 45. LEONTODON TARAXACUM, Dandelion
Lettuce, LACTUCA SATIVA
+ 46. LEUCOCASIA SP. (Colocasia sp.)
Lily-of-the-valley, CONVALLARIA MAJALIS
(Linum usitatissimum Note: Listed as a host, together with Phaseolus sp., for Pratylenchus pratensis by Goffart, 1929, who credits the observations to Schander u. Krause, 1910. The present writers find no basis for considering the parasite P. pratensis, as the above mentioned authors undoubtedly were writing about the sugar beet nematode (Heterodera schachtii)
47. LUPINUS LUTEUS, European yellow lupine
+ * 48. LUPINUS SP.
+ * 49. LYCOPERSICON ESCULENTUM, Tomato
+ * 50. MAGNOLIA KOBUS, Kobus magnolia
Maize, ZEA MAYS
+ * 51. MALUS SP., Apple
+ * 52. MEDICAGO SATIVA, Alfalfa
+ * 53. MELILOTUS ALBA, White sweetclover
Mock-strawberry, DUCHESNEA INDICA
Mustard, white, BRASSICA ALBA
+ 54. NARCISSUS POETICUS, Poets narcissus
+ * 55. NARCISSUS SP., Narcissus
Also Hort. var. PRAECOX
+ * 56. NICOTIANA SP., Tobacco
+ * 57. NICOTIANA TABACUM, Common tobacco
Oat, AVENA SATIVA
Oat, wild, AVENA FATUA
Okra, HIBISCUS ESCULENTUS
Orange, CITRUS SINENSIS
+ 58. PAEONIA ARIENTINA Hort. var. PURPLE EMPEROR, Peony
+ 59. PAEONIA SP., Peony
60. PAPAVER RHOEAS, Corn poppy
Pea, common, PISUM SATIVUM
Pea, sweet, LATHYRUS ODORATUS
Peach, AMYGDALUS SP.
Pear, PYRUS SP.
Peony, PAEONIA ARIENTINA Hort. var. PURPLE EMPEROR; PAEONIA SP.
(Phaseolus sp. See note under Linum usitatissimum)

61. PICEA GLEHNI, Sakhalin spruce
62. PICEA JEZOENSIS, Yeddo spruce
Pineapple, ANANAS SATIVUS
Pink, clove, DIANTHUS CARYOPHYLLUS
63. PISUM SATIVUM, Common pea
Plum, PRUNUS SP.
Poplar, POPULUS SP.
Poppy, corn, PAPAVER RHOEAS
+ * 64. POPULUS SP., Poplar
Potato, SOLANUM TUBEROSUM
* 65. PRUNUS SP., Plum
* 66. PYRUS SP., Pear
+ 67. RADICULA ARMORACIA (Cochlearia armoracia), Horseradish
Rape, BRASSICA NAPUS
Raspberry, RUBUS SP.
+ * 68. ROSA SP. Hort. vars. HADLEY and WHITE KILLARNEY
69. RUBUS SP., Raspberry
+ * 70. RUMEX CRISPUS, Curly dock
Rutabaga, BRASSICA NAPOBRASSICA
Rye, SECALE CEREALE
+ * 71. SACCHARUM OFFICINARUM, Sugarcane
+ * 72. SALPIGLOSSIS SP., Salpiglossis
Saltbush, ATRIPLEX SP.
73. SCORZONERA TAU-SAGHIZ
+ * 74. SECALE CEREALE, Rye
Sesame, SESAMUM ORIENTALE
(Sesamum indicum) = SESAMUM ORIENTALE
75. SESAMUM ORIENTALE (Sesamum indicum), Sesame
+ * 76. SESBANIA SP.
+ * 77. SETARIA VIRIDIS (Chaetochloa viridis), Green foxtail grass
(Sinapis alba) = BRASSICA ALBA
+ * 78. SISYRINCHIUM ANGUSTIFOLIUM, Common blue-eyed-grass
Snapdragon, ANTIRRHINUM SP.
79. SOJA MAX (Glycine hispida), Soybean
+ * 80. SOLANUM TUBEROSUM, Potato
+ * 81. SOLIDAGO ALTISSIMA, Tall goldenrod
+ * 82. SOLIDAGO EDISONIANA
+ * 83. SOLIDAGO ELLIOTTII
+ * 84. SOLIDAGO FISTULOSA
+ * 85. SOLIDAGO LEAVENWORTHII
+ * 86. SOLIDAGO NASHII
+ * 87. SOLIDAGO RUGOSA, Wrinkled goldenrod
+ * 88. SOLIDAGO SEMPERVIRENS, Seaside goldenrod
+ * 89. SOLIDAGO SEROTINA, November goldenrod
Soybean, SOJA MAX
Spruce, Sakhalin, PICEA GLEHNI
Spruce, Yeddo, PICEA JEZOENSIS

+ * 90. STEVIA SP.
Strawberry, FRAGARIA SP.
Strawberry, Chiloe, FRAGARIA CHILOENSIS
Sugarcane, SACCHARUM OFFICINARUM
Sweetclover, white, MELILOTUS ALBA
91. TARAXACUM KOK-SAGHIZ
Tasselflower, EMILIA SONCHIFOLIA
Tobacco, NICOTIANA SP.
Tobacco, common, NICOTIANA TABACUM
Tomato, LYCOPERSICON ESCULENTUM
+ * 92. TRIFOLIUM PRATENSE, Red clover
+ * 93. TRIFOLIUM SP., Clover
+ * 94. TRITICUM AESTIVUM (Triticum vulgare), Wheat
(Triticum vulgare) = TRITICUM AESTIVUM
+ * 95. ULMUS PARVIFOLIA, Chinese elm
Vetch, hairy, VICIA VILLOSA
96. VICIA VILLOSA, Hairy vetch
97. VIGNA SINENSIS, Common cowpea
+ * 98. VIOLA SPP., Violet
Violet, VIOLA SPP.
* 99. VITIS SP., Grape
(Weingartneria canescens) = CORYNEPHORUS CANESCENS
Wheat, TRITICUM AESTIVUM
Yam, DIOSCOREA SP.
+ *100. ZEA MAYS, Maize; Indian corn

ROTYLENCHUS BLABERUS STEINER, 1937

+ 1. DIOSCOREA SP., Yam

THE YAM NEMATODE
ROTYLENCHUS BRADYS (STEINER and LEHEW, 1933) FILIPJEV, 1936

+ 1. DIOSCOREA ALATA, Winged yam
2. DIOSCOREA CAYENENSIS, Yellow Guinea yam
3. DIOSCOREA ROTUNDATA, White Guinea yam
+ 4. DIOSCOREA SP., Yam

THE BURROWING NEMATODE
ROTYLENCHUS SIMILIS (COBB, 1893) FILIPJEV, 1936

* 1. ANANAS SATIVUS, Pineapple
Bamboo, GIGANTOCHLOA APUS; SCHIZOSTACHYUM SP.
Banana, common, MUSA PARADISIACA SAPIENTUM

2. BRADBURYA PUBESCENS (Centrosema pubescens)
* 3. CAJANUS INDICUS, Pigeon pea
4. CALOPOGONIUM MUCUNOIDES
* 5. CANNA EDULIS, Edible canna
(Centrosema pubescens) = BRADBURYA PUBESCENS
6. COFFEA ARABICA, Arabian coffee
7. COFFEA CANEPHORA
8. COFFEA EXCELSA
9. COFFEA QUILLOU
10. COFFEA ROBUSTA
* 11. COFFEA SP., Coffee
Cubebs, PIPER CUBEBA
* 12. CYPERUS ROTUNDUS, Nut grass
(Desmodium gyroides) = MEIBOMIA GYROIDES
13. GIGANTOCHLOA APUS, Bamboo
Grass, nut, CYPERUS ROTUNDUS
14. INDIGOFERA ENDECAPHYLLA
15. IPOMOEA BATATAS, Sweetpotato
16. MEIBOMIA GYROIDES (Desmodium gyroides)
+ * 17. MUSA PARADISIACA SAPIENTUM, Common banana
Pea, pigeon, CAJANUS INDICUS
Pepper, black, PIPER NIGRUM
Pineapple, ANANAS SATIVUS
18. PIPER CUBEBA, Cubebs
19. PIPER NIGRUM, Black pepper
+ * 20. SACCHARUM OFFICINARUM, Sugarcane
21. SCHIZOSTACHYUM SP., Bamboo
Sugarcane, SACCHARUM OFFICINARUM
Sweetpotato, IPOMOEA BATATAS
Tea, THEA SINENSIS
22. TEPHROSIA CANDIDA
23. THEA SINENSIS, Tea
24. VIGNA HOSEI

THE CITRUS-ROOT NEMATODE
TYLENCHULUS SEMI-PENETRANS COBB, 1913

Calamondin, CITRUS MITIS
+ * 1. CITRUS AURANTIFOLIA, Lime
* 2. CITRUS AURANTIUM, Seville orange
(Citrus decumana) = CITRUS GRANDIS PARADISI
(Citrus erythrosa) = CITRUS SP. Hort. var. ERYTHROSA
+ * 3. CITRUS GRANDIS PARADISI (Citrus decumana), Grapefruit
Also Hort. vars.
* 4. CITRUS LIMON, Lemon (Note: C. limonia commonly used)
Also Hort. vars.
(Citrus microcarpa) = CITRUS MITIS

5. CITRUS MITIS (Citrus microcarpa), Calamondin
   Also Hort. var.
6. CITRUS NOBILIS, King orange
   Also Hort. vars.
7. CITRUS NOBILIS DELICIOSA, Mandarin orange
+ * 8. CITRUS SINENSIS, Orange
   Also many Hort. vars.
9. CITRUS SP. Hort. var. ERYTHROSA (Citrus erythrosa)
   Also other Hort. vars.
   (Citrus trifoliata) = PONCIRUS TRIFOLIATA
* 10. FORTUNELLA JAPONICA Hort. var. MARUMI, Kumquat
* 11. FORTUNELLA MARGARITA Hort. var. NAGAMI, Kumquat
12. FORTUNELLA SP., Kumquat
Grapefruit, CITRUS GRANDIS PARADISI
Kumquat, FORTUNELLA JAPONICA Hort. var. MARUMI; F. MARGARITA Hort. var. NAGAMI; FORTUNELLA SP.
Lemon, CITRUS LIMON
Lime, CITRUS AURANTIFOLIA
Orange, CITRUS SINENSIS
Orange, King, CITRUS NOBILIS
Orange, Mandarin, CITRUS NOBILIS DELICIOSA
Orange, Seville, CITRUS AURANTIUM
Orange, trifoliate, PONCIRUS TRIFOLIATA
+ * 13. PONCIRUS TRIFOLIATA (Citrus trifoliata), Trifoliate orange

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TYLENCHUS ARBORICOLUS COBB, 1922

+ 1. FAGUS OBLIQUA, Beech roble

TYLENCHUS BALSAMORHILUS THORNE, 1926
(Probably belongs to the genus Anguina fide Filipjev)

+ * 1. BALSAMORHIZA MACROPHYLLA
+ * 2. BALSAMORHIZA SAGITTATA, Balsam
+ * 3. HELIANTHUS ANNUUS, Common sunflower
+ * 4. WYETHIA AMPLEXICAULIS, Mule ear

TYLENCHUS COFFEAE ZIMMERMANN, 1898 (Tylenchus senso lato)

Bamboo, DENDROCALAMUS ASPER; GIGANTOCHLOA APUS; SCHIZOSTACHYUM SP.
1. BRADBURYA PUBESCENS (Centrosema pubescens)
2. BRADBURYA SP. (Centrosema sp.), Butterfly-pea
   Butterfly-pea, BRADBURYA SP.
3. CALOPOGONIUM MUCUNOIDES

(Centrosema pubescens) = BRADBURYA PUBESCENS
(Centrosema sp.) = BRADBURYA SP.

4. CITRUS SINENSIS, Orange
5. COFFEA ARABICA, Arabian coffee
6. COFFEA CANEPHORA
7. COFFEA QUILLOU
+ 8. COFFEA ROBUSTA
+ 9. COFFEA SP.

Cowpea, VIGNA SP.

10. DENDROCALAMUS ASPER, Bamboo
11. GIGANTOCHLOA APUS, Bamboo
12. GIGANTOCHLOA VERTICILLATA
13. INDIGOFERA SP., Indigo

Orange, CITRUS SINENSIS

14. SCHIZOSTACHYUM SP., Bamboo
15. VIGNA SP., Cowpea

TYLENCHUS DARBOUXI COTTE, 1912 (Tylenchus senso lato)

1. THYMUS VULGARIS, Common thyme
2. THYMUS VULGARIS VERTICILLATUS

TYLENCHUS DAVAINII BASTIAN, 1865

Banana, MUSA SP.

(Barbula gigantea)= GEHEEBIA CATARACTARUM

1. ?BRACHYTHECIUM MILDEANUM
2. ?BRACHYTHECIUM RUTABULUM

(Camptothecium sericeum) = HOMALOTHECIUM SERICEUM

3. CAREX RIPARIA
4. CAREX SP.
5. CERATODON PURPUREUS
6. DICRANUM LONGIFOLIUM
7. DICRANUM MAJUS
8. DICRANUM MONTANUM
9. DICRANUM SCOPARIUM

(Didymodon alpigenus) = DIDYMODON RUBELLUS DENTATUS
(Didymodon giganteus) = GEHEEBIA CATARACTARUM

10. DIDYMODON RUBELLUS DENTATUS (Didymodon alpigenus; Erythrophyllum rubellum dentatum)
11. DREPANOCLADUS ADUNCUS (Hypnum aduncum)
12. DREPANOCLADUS ADUNCUS CAPILLIFOLIUS
13. DREPANOCLADUS ADUNCUS PSEUDOFLUITANS (Hypnum pseudofluitans)
+ 14. DREPANOCLADUS ADUNCUS PSEUDOFLUITANS forma CAPILLIFOLIUS (Hypnum capillifolium)

15. DREPANOCLADUS FLUITANS (Hypnum fluitans)
16. DREPANOCLADUS PSEUDOFLUITANS
17. DREPANOCLADUS SP. var. TENUISSIMUS (Note: Bot. standing uncertain)
(Erythrophyllum rubellum dentatum) = DIDYMODON RUBELLUS DENTATUS
18. EURHYNCHIUM PRAELONGUM ATRO-VIRENS (Eurhynchium swartzii; E. swartzii atrovirens)
19. EURYNCHIUM RUSCIFORME
(Eurhynchium swartzii) = EURHYNCHIUM PRAELONGUM ATRO-VIRENS
(Eurhynchium swartzii atrovirens) = EURHYNCHIUM PRAELONGUM ATRO-VIRENS
20. GEHEEBIA CATARACTARUM (Didymodon giganteus; Barbula gigantea)
21. ?HERBERTA ADUNCA
22. HOMALOTHECIUM SERICEUM (Camptothecium sericeum)
(Hylocomium proliferum) = HYLOCOMIUM SPLENDENS
23. HYLOCOMIUM SPLENDENS (Hylocomium proliferum)
(Hypnum aduncum) = DREPANOCLADUS ADUNCUS
(Hypnum capillifolium) = DREPANOCLADUS ADUNCUS PSEUDOFLUITANS forma CAPILLIFOLIUS
\+ 24. HYPNUM CUPRESSIFORME
(Hypnum fluitans) = DREPANOCLADUS FLUITANS
(Hypnum pseudofluitans) = DREPANOCLADUS ADUNCUS PSEUDOFLUITANS
25. LESCURAEA STRIATA
26. LEUCOBRYUM GLAUCUM
27. LEUCODON SCIUROIDES
28. MNIUM AFFINE ELATUM (Mnium seligeri)
29. MNIUM CUSPIDATUM
(Mnium seligeri) = MNIUM AFFINE ELATUM
30. MUSA SP., Banana
\+ * 31. NARCISSUS SP., Narcissus
32. PLAGIOBRYUM ZIERII (Zieria julacea)
33. ?PLAGIOTHECIUM ROESEANUM
34. POGONATUM ALOIDES
35. POGONATUM NANUM
36. PSEUDOLESKEA ATROVIRENS TENELLA
37. PTERIGYNANDRUM FILIFORME
38. RHACOMITRIUM SUDETICUM
39. RHYNCHOSTEGIUM RUSCIFORME
40. SCLEROPODIUM CAESPITOSUM
41. SCLEROPODIUM ILLECEBRUM
42. THAMNIUM ALOPECURUM
43. WEBERA NUTANS
(Zieria julacea) = PLAGIOBRYUM ZIERII

TYLENCHUS DURUS COBB, 1922
(Probably belongs to the genus Ditylenchus fide Filipjev)

\+ * 1. QUERCUS MONTANA (Q. prinus), Chestnut oak

TYLENCHUS FOLIICOLA ZIMMERMANN, 1901

1. ARALIACEAE (genus not cited)

TYLENCHUS ORYZAE DE MAN, 1902

1. ORYZA SATIVA, Rice

TYLENCHUS TUMEFACIENS COBB, 1932 (Tylenchus senso lato)

\+ 1. CYNODON TRANSVAALENSIS, South African lawn grass

NEMATODES REPORTED AS ANGUILLULINA OR TYLENCHUS SPECIES

(Acrocladium cuspidatum) = CALLIERGONELLA CUSPIDATUM
1. AGROPYRON REPENS (Triticum repens), Quackgrass
* 2. AGROPYRON SP.
3. AGROSTIS ALBA, Redtop
4. AGROSTIS CANINA, Velvet bent
\+ * 5. AGROSTIS PERENNANS, Autumn bent
6. AGROSTIS SP., Bentgrass
7. AGROSTIS SPICA-VENTI (Apera spica-venti)
8. AGROSTIS STOLONIFERA, Carpet bent
(Agrostis sylvatica) = AGROSTIS TENUIS
9. AGROSTIS TENUIS (Agrostis sylvatica; A. vulgaris), Colonial bent
(Agrostis vulgaris) = AGROSTIS TENUIS
Alfalfa, MEDICAGO SATIVA
10. ALOPECURUS GENICULATUS, Floating foxtail grass
11. ANDROPOGON PERTUSUS
12. ANTITRICHIA CURTIPENDULA
(Apera spica-venti) = AGROSTIS SPICA-VENTI
13. ARRHENATHERUM ELATIUS (Avena elatior), Tall oatgrass
14. ARTEMISIA VULGARIS, Mugwort
(Arundo phragmites) = PHRAGMITES COMMUNIS
(Avena elatior) = ARRHENATHERUM ELATIUS
15. AVENA PRATENSIS
Bamboo, Japanese timber, PHYLLOSTACHYS BAMBUSOIDES
Banana, MUSA SP.
Beet, sugar, BETA VULGARIS
Bent, autumn, AGROSTIS PERENNANS
Bent, carpet, AGROSTIS STOLONIFERA
Bent, colonial, AGROSTIS TENUIS
Bentgrass, AGROSTIS SP.

Bent, velvet, AGROSTIS CANINA
+ * 16. BETA VULGARIS, Sugar beet
Bluegrass, Alpine, POA ALPINA
Bluegrass, annual, POA ANNUA
Bluegrass, bulbous, POA BULBOSA
Bluegrass, fowl, POA PALUSTRIS
Bluegrass, Kentucky, POA PRATENSIS
Bluegrass, wood, POA NEMORALIS
17. BRACHYPODIUM PINNATUM
18. BRACHYTHECIUM MILDEANUM
19. BRADBURYA PUBESCENS (Centrosema pubescens)
+ 20. BRASSICA RAPA, Turnip
+ 21. BROMUS CATHARTICUS (Bromus unioloides), Prairie grass
22. BROMUS ERECTUS
23. BROMUS STERILIS
(Bromus unioloides) = BROMUS CATHARTICUS
24. BRYUM CAPILLARE
Buttercup, bulb, RANUNCULUS BULBOSUS
25. CALAMAGROSTIS LANCEOLATA
26. CALAMAGROSTIS LAPPONICA
+ * 27. CALAMAGROSTIS SP., Reedgrass
28. CALLIERGONELLA CUSPIDATUM (Acrocladium cuspidatum)
Cape-cowslip, LACHENALIA SP.
29. CARDUUS ACANTHOIDES, Plumeless thistle
30. CARDUUS DEFLORATUS
31. CARDUUS PERSONATA
32. CARLINA CORYMBOSA
Carnation, DIANTHUS CARYOPHYLLUS
Carrot, common, DAUCUS CAROTA
Cats-ear, HYPOCHAERIS RADICATA
(Centrosema pubescens) = BRADBURYA PUBESCENS
33. CEPHALOZIA CONNIVENS Hort. var. LAXA
* 34. CHAETOCHLOA SP.
Chicory, CICHORIUM INTYBUS
35. CHONDRUS CRISPUS
36. CICHORIUM INTYBUS, Chicory
37. CIRSIUM ARVENSE, Canada thistle
(Cirsium bulbosum) = CIRSIUM TUBEROSUM
38. CIRSIUM CANUM
39. CIRSIUM HETEROPHYLLUM
40. CIRSIUM OLERACEUM
41. CIRSIUM RIVULARE
42. CIRSIUM TUBEROSUM (Cirsium bulbosum)
43. CITRUS LIMON, Lemon
+ 44. CITRUS SP.
+ 45. CLEMATIS SP. Hort. var. GLORIE DE ST. JULIEN
Clover, TRIFOLIUM SP.

Coconut, COCOS NUCIFERA
+ * 46. COCOS NUCIFERA, Coconut
(Colocasia sp.) = LEUCOCASIA SP.
47. CONOSTEGIA SUBHIRSUTA
+ * 48. CONVALLARIA MAJALIS, Lily-of-the-valley
49. CREPIS BIENNIS, Hawksbeard
50. CREPIS LEONTODONTOIDES
51. ?CREPIS SP.
Currant, European black, RIBES NIGRUM
52. DACTYLIS GLOMERATA, Orchard grass
Dandelion, LEONTODON TARAXACUM
+ 53. DAUCUS CAROTA, Common carrot
54. DESMARESTIA ACULEATA
55. DIANTHUS BARBATUS, Sweet-william
56. DIANTHUS CARYOPHYLLUS, Carnation
57. DICRANUM BONJEANI
58. DICRANUM FULVUM
59. DICRANUM LONGIFOLIUM
60. DICRANUM MAJUS
61. DICRANUM MONTANUM
62. DICRANUM SCOPARIUM
63. DICRANUM UNDULATUM
(Didymodon alpigenus) = DIDYMODON RUBELLUS DENTATUS
(Didymodon giganteus) = GEHEEBIA CATARACTARUM
64. DIDYMODON RUBELLUS DENTATUS (Didymodon alpigenus)
65. DIPSACUS SILVESTRIS, Wild teasel
66. DREPANOCLADUS ADUNCUS (Hypnum aduncum)
67. DREPANOCLADUS ADUNCUS PSEUDOFLUITANS (Hypnum pseudofluitans)
68. DREPANOCLADUS ADUNCUS PSEUDOFLUITANS forma CAPILLIFOLIUS (Hypnum capillifolium)
69. DREPANOCLADUS FLUITANS (Hypnum fluitans)
70. DRYAS OCTOPETALA
+ 71. EHRHARTA LONGIFLORA
* 72. ELYMUS SP., Wild-rye
(Euphrasia odontites) = ODONTITES RUBRA
73. EURHYNCHIUM PRAELONGUM
74. EURHYNCHIUM PRAELONGUM ATRO-VIRENS (Eurhynchium swartzii)
(Eurhynchium swartzii) = EURHYNCHIUM PRAELONGUM ATRO-VIRENS
(Falcaria rivini) = FALCARIA VULGARIS
75. FALCARIA VULGARIS (Falcaria rivini)
76. FERULA FERULAGO (Ferulago galbanifera)
(Ferulago galbanifera) = FERULA FERULAGO
Fescue, hard, FESTUCA OVINA DURIUSCULA
Fescue, red, FESTUCA RUBRA
Fescue, sheep, FESTUCA OVINA
(Festuca duriuscula) = FESTUCA OVINA DURIUSCULA
77. FESTUCA OVINA, Sheep fescue

78. FESTUCA OVINA DURIUSCULA (Festuca duriuscula), Hard fescue
79. FESTUCA RUBRA, Red fescue
+ 80. FICUS ELASTICA, India rubertree
81. FILAGO STATHULATA
82. FONTINALIS ANTIPYRETICA
83. FONTINALIS ANTIPYRETICA LAXA
+ * 84. FRAGARIA SP., Strawberry
85. FURCELLARIA FASTIGIATA
86. GALEOPSIS ANGUSTIFOLIA
87. GALEOPSIS TETRAHIT
88. GEHEEBIA CATARACTARUM (Didymodon giganteus)
(Glyceria maritima) = PUCCINELLIA MARITIMA
(Gnaphalium leontopodium) = LEONTOPODIUM ALPINUM
Grass, floating foxtail, ALOPECURUS GENICULATUS
Grass, June, KOELERIA CRISTATA
Grass, orchard, DACTYLIS GLOMERATA
Grass, prairie, BROMUS CATHARTICUS
Grass, velvet, HOLCUS LANATUS
Hawksbeard, CREPIS BIENNIS
89. HEDWIGIA ALBICANS
90. HIBISCUS CANNABINUS
91. HIERACIUM AURICULA
92. HIERACIUM CYMOSUM PUBESCENS
93. HIERACIUM FALLAX
94. HIERACIUM FLORIBUNDUM
95. HIERACIUM PILOSELLA, Mouse-ear
96. HIERACIUM PRAEALTUM
97. HOLCUS LANATUS (Notholcus lanatus), Velvet grass
98. HOLCUS SP.
99. HOMALIA TRICHOMANOIDES
100. HOMALOTHECIUM SERICEUM
101. HYLOCOMIUM BREVIROSTRE
102. HYLOCOMIUM SPLENDENS
103. HYLOCOMIUM UMBRATUM
(Hypnum aduncum) = DREPANOCLADUS ADUNCUS
(Hypnum caespitosum) = SCLEROPODIUM CAESPITOSUM
(Hypnum capillifolium) = DREPANOCLADUS ADUNCUS PSEUDOFLUITANS forma CAPILLIFOLIUS
104. HYPNUM CUPRESSIFORME
(Hypnum elegans) = PLAGIOTHECIUM ELEGANS
(Hypnum fluitans) = DREPANOCLADUS FLUITANS
105. HYPNUM ILLECEBRUM
(Hypnum pseudofluitans) = DREPANOCLADUS ADUNCUS PSEUDOFLUITANS
(Hypnum purum) = SCLEROPODIUM PURUM
106. HYPOCHAERIS GLABRA
107. HYPOCHAERIS RADICATA, Cats-ear
+ *108. IPOMOEA BATATAS, Sweetpotato

+ *109. IRIS SP., Iris
110. JASIONE MONTANA
111. KNAUTIA ARVENSIS
112. KOCHIA PROSTRATA
113. KOELERIA CRISTATA, June grass
114. KOELERIA GLAUCA
+ 115. LACHENALIA SP., Cape-cowslip
Lemon, CITRUS LIMON
116. LEONTODON AUTUMNALIS
117. LEONTODON HASTILIS
118. LEONTODON HISPIDUS
119. LEONTODON INCANUS
120. LEONTODON PYRENAICUS
121. LEONTODON TARAXACUM (Taraxacum officinale), Dandelion
122. LEONTOPODIUM ALPINUM (Gnaphalium leontopodium)
+ 123. LEUCOCASIA SP. (Colocásia sp.)
124. LEUCODON SCIUROIDES
Lily-of-the-valley, CONVALLARIA MAJALIS
125. LINUM TENUIFOLIUM
126. LOPHOCOLEA BIDENTATA
127. LOPHOZIA ALPESTRIS
128. LOPHOZIA FLOERKII
129. LOPHOZIA VENTRICOSA
130. MEDICAGO SATIVA, Alfalfa
131. MNIUM AFFINE ELATUM (Mnium seligeri)
132. MNIUM CUSPIDATUM
133. MNIUM PUNCTATUM
(Mnium seligeri) = MNIUM AFFINE ELATUM
134. MNIUM SPINOSUM
Mouse-ear, HIERACIUM PILOSELLA
Mugwort, ARTEMISIA VULGARIS
135. MUSA SP., Banana
+ *136. NARCISSUS SP., Narcissus
Also Hort. vars. + * EMPEROR, + * PRINCEPS, and + SIR ERNEST SHACKLETON
+ *137. NICOTIANA TABACUM, Common tobacco
(Notholcus lanatus) = HOLCUS LANATUS
Oak, chestnut, QUERCUS MONTANA
Oatgrass, tall, ARRHENATHERUM ELATIUS
138. ODONTITES RUBRA (Euphrasia odontites)
139. ODONTITES VERNA
+ *140. PAEONIA SP., Peony
141. PHRAGMITES COMMUNIS (Arundo phragmites), Common reed
+ *142. PHYLLOSTACHYS BAMBUSOIDES, Japanese timber bamboo
+ *143. PINUS SP., Pine
144. PLAGIOBRYUM ZIERII (Zieria julacea)

145. PLAGIOTHECIUM DENTICULATUM
146. PLAGIOTHECIUM ELEGANS (Hypnum elegans)
147. PLANTAGO LANCEOLATA, Buckhorn plantain
148. PLANTAGO MARITIMA
+ *149. PLANTAGO SP., Plantain
Plantain, PLANTAGO SP.
Plantain, buckhorn, PLANTAGO LANCEOLATA
150. POA ALPINA, Alpine bluegrass
151. POA ANNUA, Annual bluegrass
152. POA BULBOSA (Poa bulbosa var. vivipara), Bulbous bluegrass
(Poa bulbosa var. vivipara) = POA BULBOSA
153. POA NEMORALIS, Wood bluegrass
154. POA PALUSTRIS, Fowl bluegrass
155. POA PRATENSIS, Kentucky bluegrass
156. POGONATUM ALOIDES
157. POGONATUM NANUM
158. POLYSTICHUM ATTENUATUM
(Porotrichum alopecuroides) = THAMNIUM ALOPECURUM
Potato, SOLANUM TUBEROSUM
159. PSEUDOLESKEA ATROVIRENS TENELLA
160. PSEUDOLESKEA CATENULATA
161. PTERIGYNANDRUM FILIFORME
162. PUCCINELLIA MARITIMA (Glyceria maritima)
Quackgrass, AGROPYRON REPENS
+ 163. QUERCUS MONTANA (Quercus prinus), Chestnut oak
(Quercus prinus) = QUERCUS MONTANA
164. RANUNCULUS AURICOMUS
165. RANUNCULUS BULBOSUS, Bulb buttercup
166. RANUNCULUS VELUTINUS
Raspberry, RUBUS SP.
Redtop, AGROSTIS ALBA
Reed, common, PHRAGMITES COMMUNIS
Reedgrass, CALAMAGROSTIS SP.
167. RHACOMITRIUM MICROCARPUM
168. RHACOMITRIUM SUDETICUM
169. ?RHODYMENIA PALMATA
170. RHYNCHOSTEGIUM RUSCIFORME
171. RIBES NIGRUM, European black currant
Rubbertree, India, FICUS ELASTICA
+ *172. RUBUS SP., Raspberry
173. RUMEX ACETOSA, Garden sorrel
+ *174. SACCHARUM OFFICINARUM, Sugarcane
175. SCILLA MONOPHYLLOS
176. SCLEROPODIUM CAESPITOSUM (Hypnum caespitosum)
177. SCLEROPODIUM ILLECEBRUM

178. SCLEROPODIUM PURUM (Hypnum purum)
+ *179. SESBANIA MACROCARPA
180. SOLANUM ELAEAGNIFOLIUM
+ 181. SOLANUM TUBEROSUM, Potato
182. SONCHUS ASPER, Spiny-leaved sow-thistle
Sorrel, garden, RUMEX ACETOSA
Sow-thistle, spiny-leaved, SONCHUS ASPER
Strawberry, FRAGARIA SP.
Sugarcane, SACCHARUM OFFICINARUM
Sweetpotato, IPOMOEA BATATAS
Sweet-william, DIANTHUS BARBATUS
(Taraxacum officinale) = LEONTODON TARAXACUM
Teasel, wild, DIPSACUS SILVESTRIS
183. THAMNIUM ALOPECURUM (Porotrichum alopecuroides)
Thistle, Canada, CIRSIUM ARVENSE
Thistle, plumeless, CARDUUS ACANTHOIDES
184. THUIDIUM ABIETINUM
185. THUIDIUM TAMARISCINUM
Tobacco, common, NICOTIANA TABACUM
+ 186. TRIFOLIUM SP., Clover
*187. TRISETUM SP., Trisetum
188. TRITICUM AESTIVUM (Triticum vulgare), Wheat
(Triticum repens) = AGROPYRON REPENS, Quackgrass
(Triticum vulgare) = TRITICUM AESTIVUM
Turnip, BRASSICA RAPA
189. VERONICA CHAMAEDRYS
190. VERONICA PRAECOX
191. VIOLA ODORATA, Sweet violet
Violet, sweet, VIOLA ODORATA
192. WEBERA NUTANS
Wheat, TRITICUM AESTIVUM
Wild-rye, ELYMUS SP.
(Zieria julacea) = PLAGIOBRYUM ZIERII

THE CEREAL RUST SITUATION

Dr. H. B. Humphrey, of the Division of Cereal Crops and Diseases, has transmitted reports from members of that Division concerning the development of stem rust (Puccinia graminis) and of leaf rust (P. rubigo-vera tritici) on wheat in Texas, Oklahoma, and Kansas.

Mr. C. O. Johnston writes (April 30)

"To the best of my knowledge, there is no natural infection of either leaf or stem rust in Kansas to date. I have examined many fields in the vicinity of Manhattan

and as far south and west as Salina and Lindsborg and have so far not seen a single pustule of rust in a commercial field. The temperature has been too low to favor rust infection and incubation. Yesterday a light rain in the form of mist fell and all vegetation was covered with a very heavy dew. This morning there was considerable fog and leaves were again loaded with dew. Both conditions should favor rust infection, with the exception that the temperatures are still rather low.

"Reports from College Station, Texas, indicate that the development of stem rust is fully three weeks late and of leaf rust about two weeks late in that locality. At Denton, Texas, leaf rust is now fairly well developed, though its development has been retarded by cold dry northers. Early varieties of wheat are now beginning to head at Denton. Wheat in Oklahoma and Kansas is jointing. No stem rust has been reported from Oklahoma and northern Texas as yet. It seems, therefore, that there is a possibility we will escape heavy rust infection this year, and judging by present conditions, I do not believe the northern spring wheat people need worry much about rust."

Dr. H. C. Murphy who had been visiting the uniform wheat- and oat-rust nurseries in the Southern States, telegraphed that he had observed two small infection centers of stem rust in the wheat nursery at College Station, Texas. He found no stem rust of either wheat or oats at other places in the State.

Concerning the cereal rust situation in northern Texas, Mr. I. M. Atkins reported on April 30:

"Leaf rust of wheat was first observed on March 31 which is much later than normal. On April 15, infection was very light but general with no damage. On April 30, infection was very light to fairly heavy. The damage is small as yet. Susceptible Turkey types have as high as 75 percent while many susceptible strains have low infection even at this late date.

"April weather at Denton, Texas:
Precipitation .92 inch which is 2.65 inches below normal.
Temperature - April mean 65.3° which is 1.3° above normal. Maximum 90° F. Minimum 32° F.
Humidity - 67.2, which is low.
Dews - only 6 recorded during the month.
Wind run 7.3 miles per hour.
Days clear 16; partly cloudy 8; cloudy 6.

"An excellent example of the spread of rust was observed this year. On April 12, 14, 17 the wind run was 248, 271, and 303 miles (direction south) for the 24-hour period with maximum velocities of 20 to 25 miles per hour reached on the 17th. On April 19, 20, 21 precipitations of a trace, .14, .77 inch, were recorded, followed by a heavy dew on the 22nd. Temperatures ranged from 55° to 85° F. On April 30, just 8 days later, several pustules of stem rust were observed scattered through the nursery."

Dr. Humphrey makes the following comment:

"It would appear from this latest report that weather conditions at Denton have lately been such as to promote the development of stem-rust infection and that the outlook for the spread of stem rust as well as leaf rust in the territory north of Texas, and ultimately into the spring-wheat States and the Prairie Provinces of Canada, is potentially one of great interest and one that we should follow very closely."

DISEASES OF BUR CLOVER AND ALFALFA OBSERVED IN GEORGIA

J. L. Weimer

During the warm moist January of 1937 certain diseases of alfalfa and bur clover appeared at Experiment, Georgia, a record of which may be of interest to readers of The Plant Disease Reporter. These are noted briefly below.

SOUTHERN BUR CLOVER: A leafspot caused by Stagonospora meliloti (Lasch) Pet. was abundant on Medicago arabica Huds. growing on the Experiment Station grounds. A number of leaves were killed and others were more or less injured but, so far as observed, the damage was never severe enough to cause the death of the plant. The disease disappeared later in the season as the weather became drier. This fungus was reported from Yugoslavia on this host in 1916 by Jaap as Ascochyta affinis but the present writer has found no published record of its occurrence on this host in the United States. Dr. B. B. Higgins collected this leafspot in 1929 when a similar outbreak occurred. The Stagonospora lesions were later invaded by Pseudoplea briosiana which produced perithecia and ascospores in abundance.

Cercospora medicaginis Ell. and Ev. was present on the bur clover leaves during this time also but was much less abundant than the Stagonospora. Dr. Higgins states that this disease is usually common here at certain times of the year.

ALFALFA: Alfalfa growing on the experimental farm was found to have numerous dark brown spots on the leaves and petioles. The causal fungus was not fruiting on the spots but isolations gave a fungus which was determined by Dr. F. R. Jones as Colletotrichum destructivum O'Gara. This disease did not cause much damage and seemed to disappear with the advent of drier weather. (Division of Forage Crops and Diseases).

NOTES ON THE INCIDENCE OF LEAF DISEASES OF VEGETABLE CROPS AT THE LOWER RIO GRANDE SUBSTATION, WESLACO, TEXAS, IN FEBRUARY, 1937.

G. H. Godfrey

The weather during January, while favorable for the growing of many vegetables, was cool and moist, with a mean maximum temperature of 70.5°, a mean minimum of 54.5°, a maximum of 86°, and a minimum of 38°. The total precipitation of only 1.9 inches was spread through 13 days with .01 inches or over, with 6 more days with a trace. The greatest fall in 24 hours was .83 inches.

This condition with its accompanying high humidity favored the rapid development of a number of vegetable leaf diseases early in February.

Spinach blue mold, Peronospora effusa. About an acre of spinach was practically 100 percent affected, and rendered unmarketable.

Curly leaf mustard white rust, Albugo candida. Experimental rows were 100 percent affected, with many of the outer leaves collapsing. Conidial and oospore stages are present in abundance.

Cabbage black-rot, Bacterium campestre. There was a high incidence of this disease in experimental and commercial fields on the Station.

Variety "Glory of Enkhuizen"

Source	Percentage of plants	
	With disease on one or more leaves	Severely affected and unmarketable
Michigan	68	36
Holland	85	64
Mt. Vernon, Wash.	45	18
Mt. Vernon, Wash.	21	2
Washington	64	12
Holland	58	29
Washington	39	8
?	40	6
Michigan	57	13
West Coast	63	18

Variety All Head Early

Source	Percentage of plants	
	With disease on one or more leaves	Severely affected and unmarketable
Holland	81	36
Michigan	49	4
Mt. Vernon, Wash.	19	0
Mt. Vernon, Wash.	26	1
Washington	31	4
Washington	52	4
?	31	1
Michigan	36	0
West Coast	54	1

That the origin of the seed was an important factor in its occurrence was shown by records of percentage occurrence on plants of 2 varieties, from several sources (samples of 100).

Much of the infection recorded in the first column (percentage with disease on one or more leaves) is probably late secondary. The second column is therefore the best indication of seed transmission.

Carrot leaf blight, Macrosporium carotae. In the latter part of January a commercial planting of about 2 acres on the Station appeared to be perfectly healthy, with no sign of the disease evident. By February 6 the disease had made its appearance and in the next few days the entire field was severely affected and rendered unmarketable as fresh bunch carrots. From February 5 to the end of the month the rainfall was negligible, with many sunny days, and the blight ceased to progress onto new leaves, though most of the old ones that showed even slight infection turned yellow and collapsed. Old dried blighted leaves when placed in a moist chamber sporulate abundantly. With the advent of moist weather again from March 2 to March 5, new leaves are again showing infection.

In a variety planting adjoining the commercial field, notes were taken on total number of leaves and percentage of leaves either killed or distinctly yellowed (and subsequently dying), to show varietal resistance if such occurred. The samples counted were mostly 100 plants.

While all the varieties show too much blight to be marketable as fresh bunching carrots, it is probable that Red Core Chantenay, a very desirable carrot, is significantly more resistant than other varieties.

Variety	Total leaves per plant	Percentage severely blighted
Chantenay	11.9	42
Red Core Chantenay	13.1	24.5
Morse Bunching	9.64	36.4
Nantes	12.2	43
Bagley	13.77	37
Imperator (F)	11.32	37.2
Danvers (S)	11.84	45.4
Danvers	14.05	35.8
Imperator (S)	11.05	43.1

Potato late blight, Phytophthora infestans. In a field of potatoes planted about December 15 and now nearly fully developed, in the San Benito-Rio Hondra section near the coast, the first serious epiphytotic of blight appeared on March 4. A telephone call from the County Agent of Cameron County reports the disease to be more or less general in that region in greater or less degree, and sprays and dusts are being applied. Late blight is not at all the usual experience of growers in this region, and with prospects of a good yield and a good price, considerable alarm at its appearance is manifest.

Potato early blight, Alternaria solani. On an inspection trip through the potato section, only a trace of this disease was evident in the form of small spots on scattered plants. This disease sometimes becomes serious in the Lower Rio Grande Valley. (Lower Rio Grande Valley Substation, Texas Agricultural Experiment Station, Weslaco, Texas).

APPLE DISEASES IN NEW YORK

(From New York State College of Agriculture Weekly News Letter, May 10).

Hudson Valley: Cedar apple rust (Gymnosporangium juniperi-virginianae) spores are ready to discharge with the next wetting period. There was a light discharge April 28 and another again May 6 but it is doubtful much infection will result because the showers were too short most places. The quince rust (G. clavipes) did not discharge spores. There are still plenty of scab (Venturia inaequalis) spores. The recent rains were not hard enough to cause any large discharge but aided the spores to mature so the perithecia are full of colored spores now and are ready to discharge with the next good rain. (D. H. Palmiter, Poughkeepsie).

Western New York: McIntosh leaf samples gathered in the Dolomite orchard in Monroe County on May 6 after the May 5-6 rain showed only a light discharge of ascospores during this rain. Nearly all of the perithecia observed were apparently mature, but evidence of spore discharge was noted in only 40 percent of the perithecia.

In a McIntosh sample from Youngstown, Niagara County, also gathered May 6 after the rain, considerably more discharge had apparently occurred. Bacterial action on the contents of the perithecia either in the orchard or during drying of the samples made counts less certain but 26 out of a hundred perithecia had apparently discharged most of their spores while 33 perithecia contained some empty asci.

While the number of perithecia present in western New York orchards is far below normal, McIntosh leaf samples have been received from orchards in Niagara, Monroe, and Wayne Counties which contain from four to five hundred to over two thousand perithecia per leaf. Two moderately light samples which average a hundred perithecia or less per leaf have been received from Orleans County. (W. D. Mills).

Scab on apple leaves in Rockland County. The first primary scab (Venturia inaequalis) lesions were observed on McIntosh leaves May 5, in an orchard that was practically defoliated in August last year. (W. J. Clark).

REPORTS ON FRUIT DISEASES IN RHODE ISLAND

Frank L. Howard

Apple scab (Venturia inaequalis): Apple buds are in the pre-pink to pink stage. Careful examination of perithecia and asci on May 7 showed some empty asci with the end open indicating that the spores had been shot out during the foggy night following the rain of the previous day.

Brown rot of stone fruits (Sclerotinia fructicola): During the week ending April 30 apothecial initials of Sclerotinia fructicola were found on 6 of 50 plum mummies examined at Kingston. No fully formed apothecia were found. By May 7 apothecia are fully developed and giving off spores. Plums are in full bloom. (Rhode Island State College, May 7).

NOTES ON FRUIT DISEASES IN VIRGINIA

A. B. Groves

The total rainfall for April at Winchester was 7.81 inches, most of which fell between April 24 and 28. These were dates of apple scab ascospore discharge. Apples were in full bloom on May 4 and 5. Many growers omitted the pink spray and abundant scab is anticipated in this region.

Quince rust (Gymnosporangium clavipes) is abundant north of Winchester. Heavy discharge of both quince rust and apple rust (G. juniperi-virginianae) spores occurred April 21 and during later rains.

Powdery mildew (Podosphaera sp.) was observed on apple April 18.

Peach leaf curl (Taphrina deformans) was observed in the vicinity of Winchester on May 4. (Virginia Agricultural Experiment Station).

TOBACCO DOWNY MILDEW IN KENTUCKY AND TENNESSEE

W. D. Valleau

Specimens of dark-fired tobacco affected with Peronospora tabacina were just received from Stewart Brabant, County Agent at Elkton, Kentucky, collected at Guthrie, Todd County, Kentucky on the Tennessee-Kentucky line. Roy Milton called Brabant from Clarksville, Tennessee, and told him that he was finding plenty of the disease especially in Burley beds. (Kentucky Agricultural Experiment Station, May 14).

BRIEF NOTES ON PLANT DISEASES

PEACH LEAF CURL SEVERE IN SOME AREAS: Leaf curl infection is the most severe I have ever seen on unsprayed peach trees in parts of Tennessee, Virginia, and North Carolina. (Paul R. Miller, May 17).

STEM ROT OF CLOVER AND ALFALFA IN VIRGINIA: Sclerotinia trifoliorum is generally prevalent on red clover, crimson clover, and alfalfa this spring. It is especially prevalent on young plantings of clover. (S. A. Wingard, May 10).

POWDERY MILDEW ON CEREALS IN VIRGINIA: Erysiphe graminis has been general on wheat and barley. (S. A. Wingard, May 10).

BOTRYTIS ON LETTUCE SEEDLINGS IN NEW YORK: Considerable loss was sustained by growers of lettuce due to Botrytis on seedlings. The total loss is of course undetermined as yet for undoubtedly many plants bearing primary lesions were transplanted into the field. As usual formaldehyde treated frames showed as high a percentage of Botrytis as did untreated. (M. B. Linn, Richmond County, New York State College of Agriculture Weekly News Letter, May 10).

SPECIAL NOTICES AND REQUESTS

SETS OF "STUDENT'S HANDBOOK OF MUSHROOMS OF AMERICA" AVAILABLE FOR DISTRIBUTION: The Division has recently come into possession of a considerable number of sets of the "Student's Handbook of Mushrooms of America" by Thomas Taylor, the first "Microscopist" of the Department of Agriculture. Each set consists of 5 pamphlets containing miscellaneous information on mushrooms and other larger fungi with particular reference to edible and poisonous species. This publication, issued in 1897-98, is of possible interest historically as well as for the 15 colored plates, some of which are the work of L. C. C. Krieger, the well known mycological artist. Sets can be supplied to anyone interested.

REPORTS ON THE DEVELOPMENT OF APPLE SCAB IN OTHER STATES WOULD BE APPRECIATED: So far this year the Survey has had reports on apple scab from only a very few States. It would be desirable to have information from other regions concerning the lateness or earliness of its appearance, whether there is more or less infection than usual, and conditions favoring or inhibiting its development. The Survey would appreciate reports from Collaborators who have made observations on any or all of these points.

This is true also of apple blight and rust, and peach brown rot and leaf curl, as well as of other fruit tree diseases.

APRIL WEATHER

The month of April was characterized by seasonable temperatures in nearly all sections of the country, with above-normal rainfall rather generally east of the Mississippi River and subnormal amounts over the far Southwest and most of the Great Plains. Figure 17 shows that the temperature for the month averaged remarkably near normal practically everywhere. East of the Rocky Mountains most stations had monthly means differing only 1° or less from the normal for the month, ranging generally from about 1° below normal to 1° above. West of the Rocky Mountains temperatures averaged somewhat subnormal in the Great Basin, although the deficiencies were generally not greater than 2° or 3°. (Weekly Weather and Crop Bulletin for the week ending May 4, 1937).

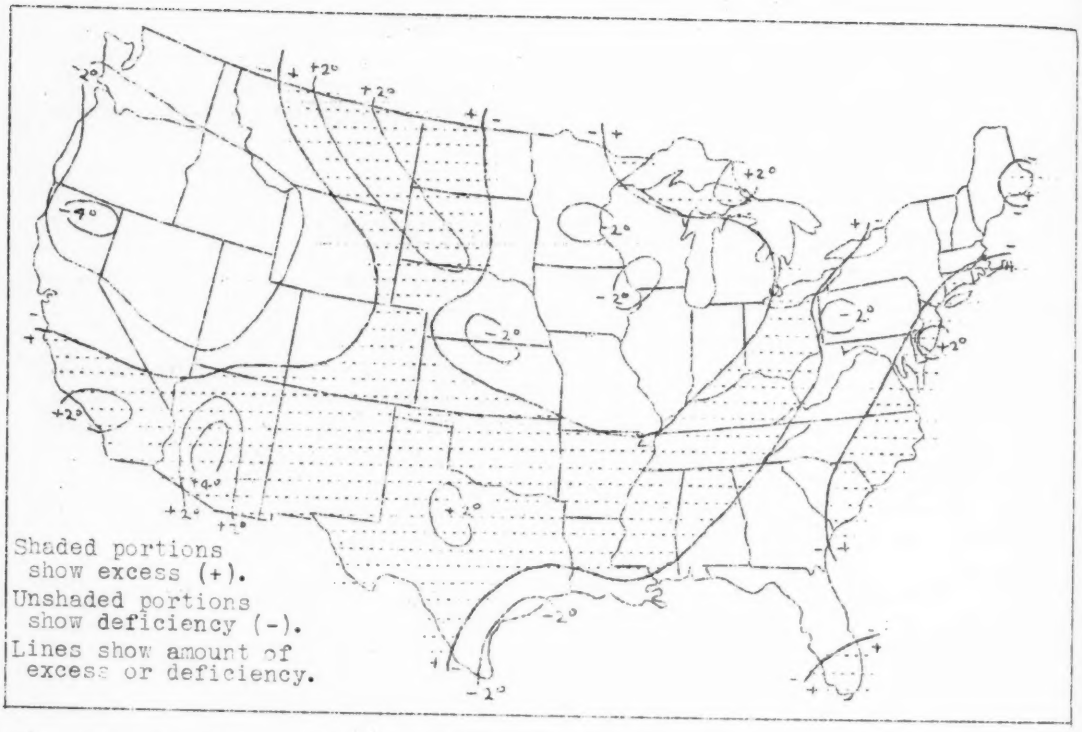

Fig. 17. Departure of Mean Temperature from the Normal for April 1937.

Figure 18 carries the percentage of normal precipitation, by States, for the month of April 1937. It shows that precipitation during this month was substantially above normal in most sections east of the Mississippi River, in the northern trans-Mississippi States, and in the north Pacific area. East of the Mississippi River only two States had less than normal and in most other cases the monthly totals were well in excess of the normal for the month. Both Washington and Oregon had more than twice the normal, while Idaho received about one and three-fourths the normal amount.

Precipitation in Washington averaged 5.08 inches, the wettest April since 1893, while the average for Oregon, 4.5 inches, was the greatest for this month since 1896. The 2.41 for Idaho made it the wettest April of record in that State. In some Central-Northern States also, the excesses were impressive. The State of Minnesota averaged 3.81 inches, the wettest April since 1896. In North Dakota it was the wettest since 1932; while

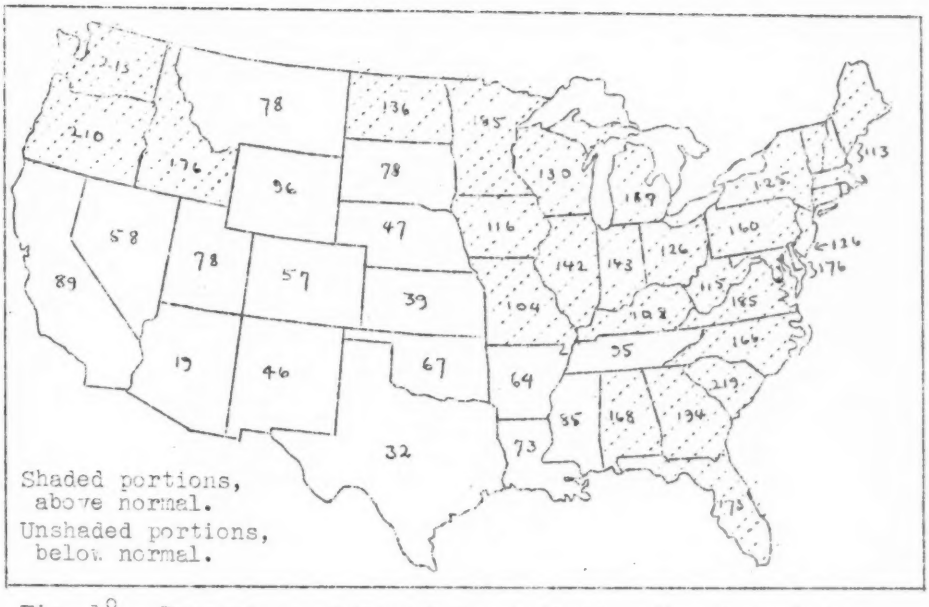

Fig. 18. Percentage of Normal Precipitation (by States) for April 1937.

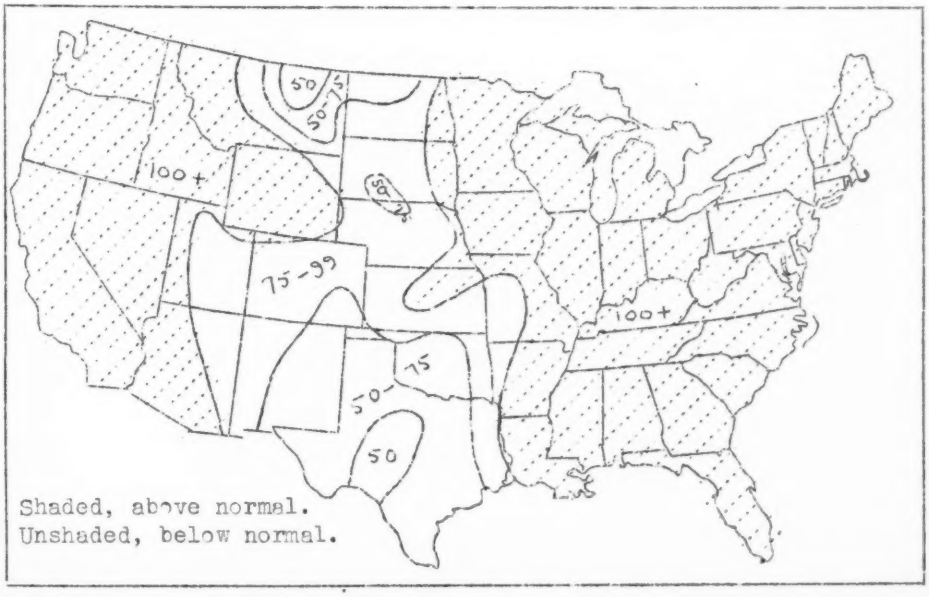

Fig. 19. Percentage of Normal Precipitation January 6 to May 1, 1937.

Illinois, Indiana, Michigan, and Wisconsin had more precipitation than in any April since 1929. In Virginia the State average of 6.09 made it the second wettest April of record for that State. (Weekly Weather and Crop Bulletin for the week ending May 11, 1937).

RAINS GIVE GROWING SEASON BETTER START THAN IN 1936

(From U. S. Department of Agriculture Press Release, May 5).

With widespread April rains, continuting into May, the 1937 growing season is off to a much better start than that of 1936, according to J. B. Kincer of the Weather Bureau.

Nearly everywhere from the Mississippi Valley eastward the moisture supply is ample. In fact, fields in large areas in the Ohio Valley and elsewhere have been too wet, so that farm operations, especially oat seeding and preparing the ground for corn, have been delayed.

West of the Rocky Mountains soil moisture generally is sufficient, except in some southern areas.

Between these two moist sections a belt extending from north to south, long too dry, has had no relieving rains this year. Rain is badly needed from eastern Montana southward to the Rio Grande Valley. April was remarkably dry from Kansas southward, with less than one-third normal rainfall in many places. Dust storms have been frequent over the drier parts of the western Plains. This dry area, however, is in somewhat better shape so far as soil moisture is concerned than on May 5, 1936.